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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
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ART UNIT	PAPER NUMBER
2123	

DATE MAILED: 08/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/532,977	FAIRMAN, RUBEN E.	
	Examin r	Art Unit	
	Eduardo Garcia-Otero	2123	

-- The MAILING DATE of this communicati n appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 March 2000 and 14 January 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 3/22/00 is/are: a)☒ accepted or b)☐ objected to by the Examiner. MB

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION: Non-Final (first action on the merits)

Introduction

1. Title is: METHODS AND SYSTEMS FOR GENERATING PROFILE CURVES OF SOLID MODELS.

2. First named inventor is: FAIRMAN.

3. Claims 1-20 have been submitted, examined, and rejected.

Index of Prior Art

4. **Solid Edge** refers to Solid Edge User's Guide Version 7, MU28900-ENG, Unigraphics Solutions ™, 1999, pages 2, and 30-51.

5. **Graham** refers to INSIDE Pro/ENGINEER Solutions, Gary Graham et al., Onworld Press, 1999, pages 76-80.

Claim Rejections - 35 USC § 101-statutory subject matter

6. 35 U.S.C. 101 reads as follows: Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. **Claims 1-13 are rejected under 35 U.S.C. 101** because the claimed invention is directed to non-statutory subject matter. Specifically, the claims are directed towards manipulation of an abstract idea (creating geometric models), without producing "useful, concrete, and tangible" results as required by *In re Alappat*.

8. An additional limitation in the independent claims using the created model for a "useful, concrete, and tangible" purpose would satisfy the requirements of 35 USC 101.

9. See MPEP(II)(A), particularly the section reproduced below:

> Although the courts have yet to define the terms useful, concrete, and tangible in the context of the practical application requirement for purposes of these guidelines, the following examples illustrate claimed inventions that have a practical application because they produce useful, concrete, and tangible result:
> - Claims drawn to a long-distance telephone billing process containing mathematical algorithms were held to be directed to patentable subject matter because "the claimed process applies the Boolean principle to produce a useful, concrete, tangible result without pre-empting other uses of the mathematical principle." AT &T Corp. v. Excel Communications, Inc., 172 F.3d 1352, 1358, 50 USPQ2d 1447, 1452 (Fed. Cir. 1999);
> - "[T]ransformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical

application of a mathematical algorithm, formula, or calculation, because it produces a useful, concrete and tangible result' -- a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades." State Street, 149 F.3d at 1373, 47 USPQ2d at 1601; and
- Claims drawn to a rasterizer for converting discrete waveform data samples into anti-aliased pixel illumination intensity data to be displayed on a display means were held to be directed to patentable subject matter since the claims defined "a specific machine to produce a useful, concrete, and tangible result." In re Alappat, 33 F.3d 1526, 1544, 31 USPQ2d 1545, 1557 (Fed. Cir. 1994).
A process that consists solely of the manipulation of an abstract idea is not concrete or tangible. See In re Warmerdam, 33 F.3d 1354, 1360, 31 USPQ2d 1754, 1759 (Fed. Cir. 1994). See also Schrader, 22 F.3d at 295, 30 USPQ2d at 1459. Office personnel have the burden to establish a prima facie case that the claimed invention as a whole is directed to solely an abstract idea or to manipulation of abstract ideas or does not produce a useful result. Only when the claim is devoid of any limitation to a practical application in the technological arts should it be rejected under 35 U.S.C. 101. Compare Musgrave, 431 F.2d at 893, 167 USPQ at 289; In re Foster, 438 F.2d 1011, 1013, 169 USPQ 99, 101 (CCPA 1971). Further, when such a rejection is made, Office personnel must expressly state how the language of the claims has been interpreted to support the rejection.

Claim Rejections - 35 USC § 112- first paragraph- description

10. The following is a quotation of the first paragraph of 35 U.S.C. 112: The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. **Claim 14-20 rejected under 35 U.S.C. 112, first paragraph,** as containing subject matter which was not described in the disclosure in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

12. Claim 14 states **"server system further configured to generate a single equivalent curve for each revolved face of the three-dimensional solid in a two-dimensional plane".** Note that "system" is interpreted as a "machine" according to the statutory categories listed in 35 USC 101, and note that the "data storage device" is part of this machine.

13. The Specification FIG 1 element 12 states "SERVER SYSTEM", but does not adequately describe "configured to generate a single equivalent curve". Note that **"server"** is defined by Microsoft Computer Dictionary Fourth Edition 1999 as "... a computer running administrative software that controls access to the network and its resources, such as printers and disk drives, and provides resources to computers functioning as workstations on the

network". Further note that **"configuration"** is defined by Microsoft Computer Dictionary Fourth Edition 1999 as "In relation to networks, the entire interconnected set of hardware, or the way in which a network is laid out—the manner in which elements are connected". Thus, configuration is related to the set of hardware, and apparently has little or nothing to do with generating "a single equivalent curve..." as claimed.

14. Claims 15-20 depend from claim 14, and are rejected for the same reasons as claim 14.

Claim Rejections - 35 USC § 112- first paragraph- enablement

15. The following is a quotation of the first paragraph of 35 U.S.C. 112: The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

16. **Claims 14-20 are rejected under 35 U.S.C. 112, first paragraph,** as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

17. Claim 14 states **"server system further configured to generate a single equivalent curve for each revolved face of the three-dimensional solid in a two-dimensional plane".** Note that "system" is interpreted as a "machine" according to the statutory categories listed in 35 USC 101, and note that the "data storage device" is part of this machine.

18. The Specification FIG 1 element 12 states "SERVER SYSTEM", but does not adequately describe "configured to generate a single equivalent curve". Note that **"server"** is defined by Microsoft Computer Dictionary Fourth Edition 1999 as "... a computer running administrative software that controls access to the network and its resources, such as printers and disk drives, and provides resources to computers functioning as workstations on the network". Further note that **"configuration"** is defined by Microsoft Computer Dictionary Fourth Edition 1999 as "In relation to networks, the entire interconnected set of hardware, or the way in which a network is laid out—the manner in which elements are connected". Thus, configuration is related to the set of hardware, and apparently has little or nothing to do with generating "a single equivalent curve..." as claimed.

19. Claims 15-20 depend from claim 14, and are rejected for the same reasons as claim 14.

Claim Rejections - 35 USC § 112-Second Paragraph-indefinite claims

20. The following is a quotation of the second paragraph of 35 U.S.C. 112: The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

21. **Claims 14-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite** for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

22. Claim 14 states **"server system further configured to generate a single equivalent curve for each revolved face of the three-dimensional solid in a two-dimensional plane".** Note that "system" is interpreted as a "machine" according to the statutory categories listed in 35 USC 101, and note that the "data storage device" is part of this machine.

23. The Specification FIG 1 element 12 states "SERVER SYSTEM", but does not adequately describe "configured to generate a single equivalent curve". Note that **"server"** is defined by Microsoft Computer Dictionary Fourth Edition 1999 as "... a computer running administrative software that controls access to the network and its resources, such as printers and disk drives, and provides resources to computers functioning as workstations on the network". Further note that **"configuration"** is defined by Microsoft Computer Dictionary Fourth Edition 1999 as "In relation to networks, the entire interconnected set of hardware, or the way in which a network is laid out—the manner in which elements are connected". Thus, configuration is related to the set of hardware, and apparently has little or nothing to do with generating "a single equivalent curve..." as claimed.

24. Claims 15-20 depend from claim 14, and are rejected for the same reasons as claim 14.

No Prior Art Examination - Indefinite Claims - In re Steele

25. **Claims 14-20 are so indefinite that no prior art examination is feasible.** Specifically, the Examiner should not rely "on what at best are speculative assumptions as to the meaning of the claims", and should not base "a rejection under 35 U.S.C. 103 thereon...[when] the claims do not particularly point out and distinctly claim the invention as required by 35 U.S.C. 112." In re Steele , 305 F.2d 859, 134 USPQ 292, 295 (CCPA 1962). Also see In re Citron, 45 CCPA 773, 251 F.2d 619, 116 USPQ 409.

26. Note that Claims 14-20 have been rejected under 35 USC 112 First Paragraph for written description, and 35 USC 112 First Paragraph for lack of enablement, and further rejected under 35 USC 112 Second Paragraph for indefinite claims. The Examiner believes that it would be counter-productive to make speculative assumptions for the purpose of examination against prior art. These claims will be examined against prior art only after such an examination becomes feasible.

Claim Rejections - 35 USC § 102(a)

27. The following is a quotation of 35 U.S.C. 102(a) which forms the basis for the rejections under this section in this Office action: (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

28. Claims 1-13 are rejected under 35 U.S.C. 102(a).

29. Claim 1 is rejected under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

30. Claim 1 is an independent "method" claim with 2 limitations.

31. **"selecting the three-dimensional solid for which the associative two-dimensional section is to be generated"** is disclosed by Solid Works at page 40 "base feature using the Revolved Protrusion". Note that the Solid Edge user/designer is inherently beginning with a three-dimensional design on paper or in the designer's head, then using Solid Edge to draw a profile, then using Solid Edge to rotate the profile and generate a portion of a CAD (or digital) three-dimensional solid.

32. **"generating a single equivalent profile curve for each revolved face of the three-dimensional solid in a two-dimensional plane"** is disclosed by Solid Works at page 41 "drawing the profile for a revolved protrusion or cutout, you also must define an axis of revolution." Note that the Solid Edge user/designer is inherently beginning with a three-dimensional design on paper or in the designer's head, then using Solid Edge to draw a profile, then using Solid Edge to rotate the profile and generate a portion of a CAD (or digital) three-dimensional solid.

33. Claim 2 is rejected under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

34. Claim 2 depends from claim 1, with 2 additional limitations.

35. **"identifying a seed revolved edge on the three-dimensional solid selected"** is disclosed by Solid Works at page 41 "drawing the profile for a revolved protrusion or cutout, you also must define an axis of revolution."

36. **"querying the three-dimensional solid for revolved faces adjacent to the seed revolved edge"** is disclosed by Solid Works at page 41 "profile for a revolved protrusion or cutout, you also must define an axis of revolution."

37. Claim 3 is rejected under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

38. Claim 3 depends from claim 2, with 2 additional limitation.

39. **"creating a trace list including each face identified and traversed while querying the three-dimensional solid"** is disclosed by Solid Works at page 41 "profile for a revolved protrusion or cutout, you also must define an axis of revolution."

40. **"querying the solid with a loop-wise sequence to generate a contiguous path of profile curves"** is disclosed by Solid Works at page 41 "profile for a revolved protrusion or cutout, you also must define an axis of revolution."

41. Claim 4 is rejected under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

42. Claim 4 depends from claim 3, with 1 additional limitation.

43. **"the three-dimensional solid includes one of a torodial (sic) and spherical face, said step of generating a single equivalent profile curve further comprising the step of creating an arc as an equivalent curve"** is disclosed by Solid Works at page 43 "you can define up to three path curves" and page 41 "profile for a revolved protrusion or cutout, you also must define an axis of revolution."

44. Note that "torodial" is interpreted as "toroidal". And a toroid is defined as "a surface generated by a plane closed curve rotated about a line that lies in the same plane as the curve but does not intersect it" by Merriam Webster's Collegiate Dictionary, Tenth Edition. Thus, the surface of a doughnut is a toroid.

45. Claim 5 is rejected under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

46. Claim 5 depends from claim 4, with 2 additional limitations.

47. **"the three-dimensional solid includes one of a conical, planar, or cylindrical face"** is disclosed by Solid Works at page 41 "profile for a revolved protrusion or cutout, you also

must define an axis of revolution." and at page 36 "Lines are extended linearly (A); arcs are extended radially (B)".

48. **"said step of generating a single equivalent profile curve further comprising the step of creating a line as an equivalent profile curve"** is disclosed by Solid Works at page 41 "profile for a revolved protrusion or cutout, you also must define an axis of revolution." and at page 36 "Lines are extended linearly (A); arcs are extended radially (B)".

49. Claim 6 is rejected under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

50. Claim 6 depends from claim 5, with 1 additional limitation.

51. **"the three-dimensional solid includes a revolved-spline face"** is disclosed by is disclosed by Solid Works at page 43 "you can define up to three path curves".

52. Note that "spline" is defined as "a function that is defined on an interval, is used to approximate a given function, and is composed of pieces of simple functions defined on subintervals and joined at their endpoints with a suitable degree of smoothness" by Merriam Webster's Collegiate Dictionary, Tenth Edition.

53. **"said step of generating a single equivalent profile curve further comprising the step of creating a line as an equivalent profile curve"** is disclosed by Solid Works at page 41 "profile for a revolved protrusion or cutout, you also must define an axis of revolution." and at page 36 "Lines are extended linearly (A); arcs are extended radially (B)".

54. Claim 7 is rejected under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

55. Claim 7 is an independent "apparatus" claim, with 1 limitation.

56. **"apparatus comprising a processor programmed to generate a single equivalent profile curve for each revolved face in a two dimensional plane"** is disclosed by Solid Works at page 41 "drawing the profile for a revolved protrusion or cutout, you also must define an axis of revolution" and page 2 "Solid Edge is a computer-aided design CAD) system".

57. Claim 8 is rejected under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

58. Claim 8 depends from claim 7, with 1 additional limitation.

59. **"said processor further programmed to generate the two-dimensional representation without intersection lines within the three-dimensional solid"** is disclosed by Solid Works at page 41 "drawing the profile for a revolved protrusion or cutout, you also

must define an axis of revolution" and page 2 "Solid Edge is a computer-aided design CAD) system".

60. Claim 9 is rejected under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

61. Claim 9 depends from claim 8, with 1 additional limitation.

62. **"said processor further programmed to follow a loop-wise sequence to create a contiguous path of profile curves"** is disclosed by Solid Works at page 41 "drawing the profile for a revolved protrusion or cutout, you also must define an axis of revolution" and page 2 "Solid Edge is a computer-aided design CAD) system".

63. Claim 10 is rejected under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

64. Claim 10 depends from claim 9, with 1 additional limitation.

65. **"identify a seed revolved edge bordering a face"** is disclosed by Solid Works at page 41 "drawing the profile for a revolved protrusion or cutout, you also must define an axis of revolution."

66. **"querying the three-dimensional solid from the revolved edge to each adjacent face to circumscribe the three dimensional solid"** is disclosed by Solid Works at page 41 "profile for a revolved protrusion or cutout, you also must define an axis of revolution."

67. Claim 11 is rejected under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

68. Claim 11 depends from claim 10, with 1 additional limitation.

69. **"the three-dimensional solid includes one of a torodial (sic) and spherical face, said processor further programmed to generate an arc"** is disclosed by Solid Works at page 43 "you can define up to three path curves", and page 36 "arcs", and page 41 "profile for a revolved protrusion or cutout, you also must define an axis of revolution."

70. Note that "torodial" is interpreted as "toroidal". And a toroid is defined as "a surface generated by a plane closed curve rotated about a line that lies in the same plane as the curve but does not intersect it" by Merriam Webster's Collegiate Dictionary, Tenth Edition. Thus, the surface of a doughnut is a simple toroid.

71. Claim 12 is rejected under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

72. Claim 12 depends from claim 10, with 1 additional limitation.

73. **"the three dimensional solid includes one of a conical, planar, and cylindrical face, said processor further programmed to generate a line"** is disclosed by Solid Works at

page 43 "you can define up to three path curves", and page 36 "Lines", and page 41 "profile for a revolved protrusion or cutout, you also must define an axis of revolution."

74. Claim 13 is rejected under 35 U.S.C. 102(a) as being anticipated by Solid Edge.

75. Claim 13 depends from claim 10, with 1 additional limitation.

76. **"the three dimensional solid includes a revolved-spline face, said processor further programmed to generate a spline"** is disclosed by is disclosed by Solid Works at page 43 "you can define up to three path curves".

77. Note that "spline" is defined as "a function that is defined on an interval, is used to approximate a given function, and is composed of pieces of simple functions defined on subintervals and joined at their endpoints with a suitable degree of smoothness" by Merriam Webster's Collegiate Dictionary, Tenth Edition.

Additional Cited Prior Art

78. The following US patents or publications are hereby cited as prior art, but have not been used for rejection. Applicant should review these carefully before responding to this office action.

79. INSIDE Pro/ENGINEER Solutions, Gary Graham et al., Onworld Press, 1999, pages 76-80, discloses "Revolved Features".

Conclusion

80. All claims are rejected.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eduardo Garcia-Otero whose telephone number is 703-305-0857. The examiner can normally be reached on Monday through Thursday from 9:00 AM to 7:00 PM. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kevin Teska, can be reached at (703) 305-9704. The fax phone numbers for this group are:
(703) 746-7238 --- for communications after a Final Rejection has been made;
(703) 746-7239 --- for other official communications; and
(703) 746-7240 --- for non-official or draft communications.
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist, whose telephone number is (703) 305-3900.

SAMUEL BRODA, ESQ.
PRIMARY EXAMINER